Directorate of
Intelligence

~~Confidential~~

25X1

25X1

Sudan: Transportation and Economic Development

A Research Paper

~~Confidential~~

NESA 84-10197
June 1984

Copy 348

25X1

Sudan: Transportation and Economic Development

25X1

A Research Paper

25X1

This paper was prepared by
Office of Near Eastern and South Asian Analysis.
It was coordinated with the Directorate of
Operations.

25X1

Comments and queries are welcome and may be
directed to the Chief, Arab-Israeli Division, NESA,

25X1

Confidential
NESA 84-10197
June 1984

25X1

Sudan: Transportation and Economic Development

25X1

Summary

Information available as of 22 April 1984 was used in this report.

Sudan's poor transportation system severely restricts its economic development. The system must be improved if Sudan is to expand agricultural exports, increase foreign exchange earnings, and thereby manage its $9 billion external debt.

Sudan has no significant overland transportation links with neighboring countries. It relies on shipping through Port Sudan for international trade and airlines for international movement of passengers.

Poor management by the state-run transportation corporations has caused Sudan's internal river and rail networks to decline. These networks have lost many middle managers and technicians to higher paying jobs in the Persian Gulf states and are overstaffed with unskilled laborers. Unreliable service is the primary reason these systems have lost traffic to more expensive road transportation.

The expansion of the paved road network since the mid-1970s has led to a limited improvement in internal transportation. We believe that further planned road improvements, particularly in the rain fed agricultural and livestock areas of western Sudan, will stimulate increased production for export. Sudan will have difficulty, however, meeting the large maintenance requirements of its highway system.

A privately owned trucking industry now dominates Sudanese transportation, using the road network financed by the government and foreign donors. This passably efficient alternative to state-run transportation gives farmers greater assurance that their produce will reach export markets and has lowered a major barrier to private investment.

The Sudanese Government's decisions on the allocation and pricing of petroleum, however, still significantly hamper privately operated road transportation. Private fuel consumers have difficulty obtaining supplies at points distant from Port Sudan. The fuel situation particularly hinders economic development in the south.

Sudan's transportation network is worst in the south, where southern dissidents have disrupted transportation links. This has created logistic problems for the Sudanese armed forces and prevented vital food and petroleum shipments from reaching the south. Banditry also hinders southern road transportation and is responsible for higher prices to compensate truckers for the added risk.

25X1

North-south transportation links have always been weak, contributing little to the economic integration or political unification of Sudan. Two major development projects, the Jonglei Canal and an oil pipeline, will improve transportation and trade ties, but construction has been suspended because of dissident attacks on the companies involved.

Improvements in transportation would do more to develop the Sudanese economy if other, policy-related barriers to development also could be lowered. The principal barrier is the government's erratic tax and tariff policies, which have been underscored by its recent moves to Islamize the economy.

25X1

25X1

Sudan: Transportation and Economic Development

25X1

Overview of the System

Transportation problems are endemic to Sudan, which is sparsely populated, only slightly industrialized, and has the largest area of any African country (2.5 million square kilometers). Poor transportation hampers Sudan's economic development and must be improved if the country is to manage its $9 billion external debt. Additional foreign exchange earnings would come from an expansion of agricultural exports, which could be induced by improvements in transportation.

Transportation also has been a target of the growing insurgency in southern Sudan. Dissidents have greatly curtailed ground transportation in the south since February 1984. This has created logistic problems for the Sudanese armed forces and prevented vital food and petroleum shipments from reaching the south. Adequate protection of the transportation lines is beyond the capabilities of the Sudanese Government because of the long distances involved and the remoteness of the south.

The private sector provides 65 percent of Sudan's transportation, according to the Ministry of Finance.[1] This figure, however, hides the true extent of governmental control because public corporations own and operate river, rail, and air transportation, as well as Sudan's only seaport. Only road transport is operated privately, but it carries most of the country's freight and passengers. The government's investment in transportation for fiscal year (July to June) 1983 was $30 million, while foreign sources invested $55 million.[2] More than half of all transportation spending went toward road construction.

Sudan's main transportation routes were north-south on the rivers before the railroads were built. The rivers are now feeder lines for the railroads, which generally run east-west from Port Sudan. The river and rail systems do not overlap and thus do not compete for traffic. Roads compete, but in many areas they become impassable during parts of the rainy season from May to August. The trains and steamers usually operate all year.

25X1

Sudan has neither railroads nor paved roads connecting it with any of its eight neighbors. Transportation with the outside world is primarily by air for passengers and by ship for freight. Virtually all imports and exports pass through Port Sudan.

25X1

Internal transportation links become weaker with increasing distance from Port Sudan and Khartoum. The most primitive and least reliable transportation is in the south, which has large areas of swampland where the transportation network is difficult to maintain. Northern Sudan also lacks modern transportation away from the Nile, but this desert area is virtually uninhabited.

25X1

25X1

Ports

Port Sudan is the country's only operational deepwater port. It is owned and operated by Sea Ports Corporation (SPC), a public enterprise under the Ministry of Transport. SPC is the only profitable government transportation corporation. The 15-berth harbor at Port Sudan is naturally sheltered, and entry is rarely affected by bad weather. The port has no drydock facilities.

25X1

The tonnage handled by Port Sudan has risen from 3 million in 1974 to 4 million in 1983. Virtually all of Sudan's foreign trade passes through Port Sudan, with import volume exceeding export volume by as much as 3 to 1. Petroleum products account for half of import volume.

25X1

[1] Unless otherwise indicated, the basic data about Sudan's transportation system have been drawn from unclassified Sudanese Government publications, press reports, and direct observations by US defense attaches and Embassy personnel.

25X1

[2] Dollar values were obtained by using the official exchange rate US$1 = 1.30 Sudanese pounds.

25X1

Sudan: Transportation Statistics, 1975-82

Item	1975	1976	1977	1978	1979	1980	1981	1982
Seaport (Port Sudan)								
Passengers	30,921.0			2,719.0	9,316.0	10,221.0	18,289.0	22,385.0
Freight (*thousand metric tons*)	3,155.0	3,560.0	3,842.0	3,661.0	3,535.0	4,081.0	3,984.0	3,814.0
Export	852.0	1,311.0	1,363.0	1,154.0	1,006.0	1,259.0	1,103.0	989.0
Import	2,303.0	2,249.0	2,479.0	2,507.0	2,529.0	2,822.0	2,881.0	2,825.0
Railway								
Freight (*million tons/km*)	2,175.0	2,620.0	2,415.0	1,555.0	1,456.0	1,966.0	1,506.0	1,512.0
Passengers (*million passengers/km*)	1,101.0	1,166.0	1,294.0	1,192.0	1,057.0	1,061.0	1,033.0	900.0
Passengers/Port Sudan–Khartoum (*thousands*)	444.1	474.5	499.9	330.4	214.1	244.9	215.8	
River								
Freight (*million tons/km*)	82.5	89.5	94.0	88.6	64.9	71.3	88.3	95.3
Passengers (*million passengers/km*)	87.7	87.7	68.7	114.1	53.9	65.3	25.6	28.3
Roads								
Freight (*million tons/km*)					3,270.0	3,570.0		3,900.0
Passengers (*million passengers/km*)					6,500.0			7,200.0
Air								
Cargo (*million tons/km*)	7.4	9.1	10.2	9.3	7.6	6.8	6.5	
Passengers (*million passengers/km*)	286.2	536.4	555.1	604.2	652.2	766.7	615.3	

25X1

Congestion at Port Sudan became a serious problem in the late 1970s. It was relieved temporarily when the Port Sudan–Khartoum highway was completed, enabling half of Port Sudan's cargo to be trucked. Congestion again has increased since June 1983, with the port operating near capacity. Large quantities of unclaimed goods are stored in warehouses. The slow clearance of goods through customs encourages graft as customers try to avoid delays.

The World Bank is sponsoring projects to mechanize cargo handling and increase storage areas. Current and planned projects probably will give the port a capacity of 5 million tons per year by 1990. Improvements include quay resurfacing, berth extensions, dredging, and construction of roll-on/roll-off ramps. Changes also are under way to make it even easier for trucks to use the port, which was originally designed as a rail terminus. Efforts to expand Port Sudan's capacity are limited, however, by the small size of the harbor, labor intensive cargo handling, and shortages of space.

The World Bank estimates that future cargo-handling demands will require development of the unused port at Sawakin—50 kilometers south of Port Sudan—by the mid-1990s. A feasibility study has been completed for this project, but funds for construction are unavailable. If the port is built, it would specialize in handling container and roll-on/roll-off ships, which are proving difficult to introduce in Port Sudan because of space limitations. Most of the cargo would be sent inland by truck because the Port Sudan–Khartoum highway passes through Sawakin.

25X1

25X1

In May 1983 work began on Port Nimeiri, 20 kilometers south of Port Sudan. This oil terminal will serve the oil pipeline being built by the White Nile Petroleum Company from oilfields in southern Sudan. The terminal and pipeline were expected to be completed by 1986 but probably will be delayed at least a year because of armed conflict in the south.

25X1

25X1

Rail Transportation

Sudan has 4,800 kilometers of narrow-gauge railroad track, extending from Port Sudan to Wadi Halfa' in the north, Nyala in the west, and Waw in the south. The southern regions of A'li an Nil (Upper Nile) and Al Istiwa'i (Equatoria) are the only areas of significant population not served by the rail system. The entire system is single tracked except for 200 kilometers between Port Sudan and Taqatu 'Hayya. The rail system is operated by the state-owned Sudan Railways Corporation (SRC).

The Port Sudan–Khartoum line carries the most traffic. The farther from Port Sudan, the less is the amount of cargo carried. The volume of exports entering Port Sudan by rail is typically 30 to 40 percent of the imports exiting by rail. The problem of empty eastbound trains is worse on the far reaches of the rail lines.

Passenger traffic is more evenly distributed than freight and is heaviest at points close to Port Sudan and Khartoum. Passenger operations are subsidized by freight traffic and contribute only 20 percent of the railroad's revenue.

SRC freight traffic has steadily declined from 2.7 billion ton-kilometers in 1970 to 1.4 billion in 1983. Most of this decrease is due to deteriorating service, the opening of an oil pipeline, and competition from road vehicles. Passenger traffic has declined less than freight, except for the Port Sudan–Khartoum route, which faces strong road competition. Road transportation is about twice as expensive as the railroad but provides faster and more reliable service. Small loads are particularly difficult to ship on the railroad.

An 815-kilometer oil pipeline from the Port Sudan refinery to Khartoum became operational in 1977. The oil had been carried by railroad tankers, and the pipeline has freed some of the tankers to carry petroleum to more distant markets. SRC's petroleum traffic—which is 40 percent of import volume—may decline again when the White Nile Petroleum Company's pipeline is completed. The 1,500-kilometer pipeline will have a parallel return line to transport diluents (for the waxy crude) and some refined products to the south.

The profitability of SRC has suffered as its freight volume has declined. Its annual deficit recently has been about $15 million. World Bank experts claim the only profitable section of the Sudanese rail system is the Port Sudan–Khartoum line. Rates for "strategic" and export goods, such as petroleum products, sugar, and cotton, are kept low. The Ministry of Finance is supposed to compensate SRC for the subsidized rates, but payments are irregular and arbitrary. Periodic rate increases have not kept pace with inflation. 25X1 25X1

SRC rates were raised substantially in 1983. The charge for petroleum tripled, and rates for export goods, general merchandise, and passengers increased 35 to 70 percent. The US Embassy believes these rates are still at subsidized levels, and another deficit for SRC is expected in 1984. 25X1

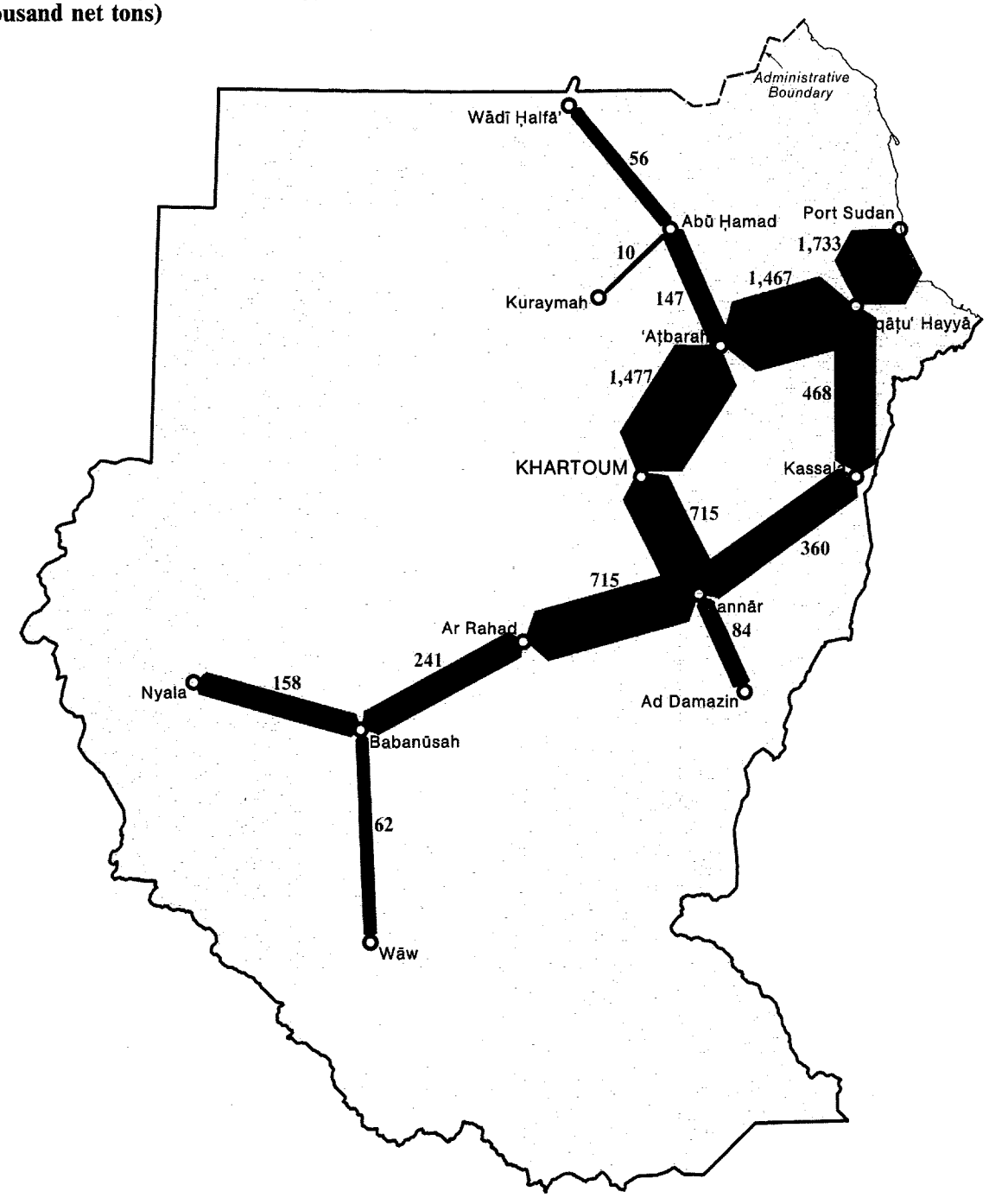
Diesel locomotive service was introduced in Sudan in 1960. Diesels have declined from 80 percent of the locomotive fleet in the mid-1960s to 65 percent today. The main reason for the decline seems to be a lack of spare parts that affects diesels more than steam locomotives. Only 55 to 65 percent of the locomotive stock usually is operational. 25X1 25X1 25X1

SRC is Sudan's largest employer with about 35,000 workers. Wages constitute 70 percent of its operating costs. The size of the labor force has not changed significantly, even though SRC's service has been declining for 10 years. 25X1

SRC clearly is overstaffed. Many workers are unqualified for skilled work, and many lack motivation because of wages that are low and have been declining in real terms since 1970. The Sudan Railway Workers Union has had little collective bargaining power since its unsuccessful strike in 1981. Competition from the expanding road network probably will further erode the union's economic power. 25X1 25X1

Sudanese railroad workers know that their counterparts in the Persion Gulf states earn substantially more, but only skilled workers can obtain jobs there. The loss of skilled workers to higher paying jobs in the 25X1

Sudanese Railway Traffic Density, 1982
(thousand net tons)



25X1

702486 (544712) 6-84

Navigability of Sudan's Rivers

Sudan's rivers contain significant, but not insurmountable, physical barriers to navigation. *five cataracts restrict travel on the Nile between Khartoum and Wadi Halfa'. In addition, seasonally low waters and shifting sands restrict travel on the northern Nile. During the low water season in March, barge loads must be reduced and travel restricted to daylight hours. The Blue Nile from Ad Damazin to Khartoum is navigable most of the year with no cataracts, but the Sennar and Roseires dams restrict continuous travel.*

There are no cataracts on the White Nile between Khartoum and Juba, and only one dam 40 kilometers south of Khartoum. The 50-year-old Jabal al Awliya' (Jebel Aulia Dam) has locks, but they are unreliable. Shallow stretches and sharp bends between Kusti and Khartoum make travel difficult. Water hyacinth creates a problem on most of the White Nile, slowing barges and damaging propellers. Navigation markers are important because the water surface is often obscured by vegetation. Navigation aids are in place between Kusti and Bentiu, but not for any other portions of Sudan's rivers.

The 40 kilometers of river between Mongalla and Juba are steep, with water velocity twice the White Nile average. In addition, low water areas and unstable river banks hinder navigation. This section is often inaccessible in the dry season, when goods must be trucked to Juba.

The river route from Juba to Malakal will be shortened if the 360-kilometer Jonglei Canal between Bor and Malakal is completed. The canal was scheduled for completion in 1986, but construction has been suspended since November 1983 because of armed attacks by rebels against the French construction company. The canal would divert about 10 percent of the Nile water going into the swampy As Sudd. Navigability of the White Nile in the As Sudd could be reduced during the dry season if the canal is built.

Persian Gulf states contributes to SRC's poor performance. The structure of job classifications also discourages unskilled workers from acquiring skills on the job. A promotion can disqualify a worker from overtime and reduce his pay. 25X1 25X1

River Transportation 25X1

Seventy percent of Sudanese live within 30 kilometers of a navigable river. The rivers appear to be vastly underutilized, however, moving only 2 percent of Sudan's freight and less than 1 percent of the passengers. River traffic has been declining since the early 1970s, primarily because of inefficient management, poor equipment, inadequate river transport facilities, and shortages of spare parts. 25X1 25X1

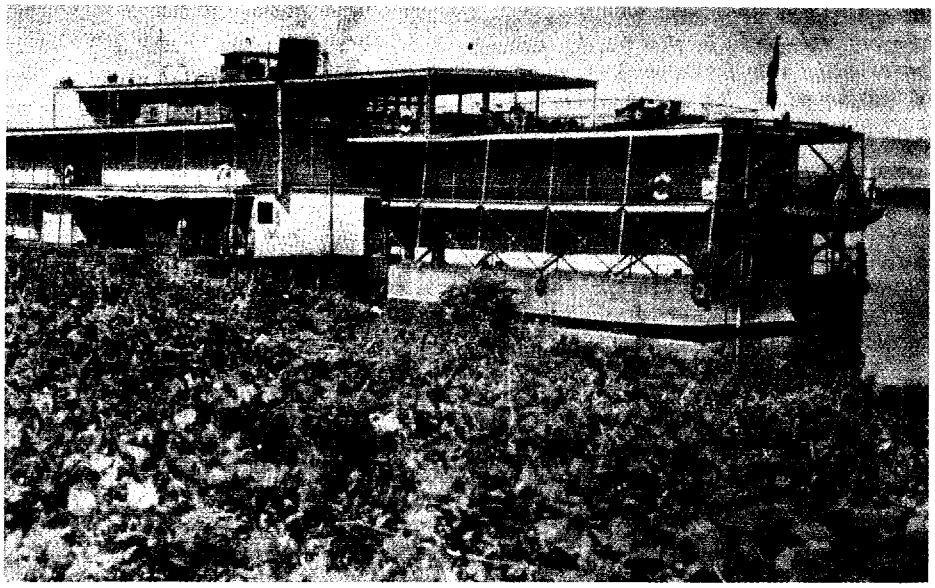
The White Nile is an important link between north and south in terms of freight tonnage and the number of passengers carried, even though rivers carry only a small portion of Sudan's total traffic. Major rail and road terminals are located on the rivers to permit the transfer of goods and passengers. 25X1 25X1

Scheduled commercial river service is provided by the government's River Transport Corporation (RTC) on two sections of the Nile: the 1,436-kilometer Southern Reach from Kusti to Juba and the 287-kilometer Northern Reach from Kuraymah to Dunqulah. RTC carries both freight and passengers. The Southern Reach handles roughly twice as many tons and passengers as the Northern Reach and generates slightly more than twice the revenue. 25X1 25X1

RTC uses less than 30 percent of its barge capacity. On the Southern Reach, barges are usually as full as conditions permit southbound but are largely empty on the return trip. Juba had an import-to-export ratio of 4 to 1 in fiscal year 1983. The mostly empty northbound barges make the per-ton-kilometer cost about twice as high downstream as upstream, although RTC charges the same freight rates for both directions. 25X1 25X1

RTC is an independent government agency with a virtual monopoly on river transportation. As a result of several studies of Sudan's river transportation, the 25X1

A steamer on the White Nile with surface vegetation in the foreground



25X1

government decided in 1979 to let private firms compete with RTC. The government is slowly implementing the decision, and as yet little effective competition has developed. RTC will now rent its equipment to any firm it considers a qualified user.

A few small, privately owned vessels provide local service on the rivers. Surveys have indicated that other possible entrants are willing to provide service but doubt the government's commitment to privatization.

The only inland transportation connection between Egypt and Sudan is boat service over Lakes Nubia and Nasser, which connect Wadi Halfa' and Aswan. The service is operated by a joint Egypt-Sudan governmental organization, the Nile Valley Navigation Authority. Boats run twice weekly carrying both passengers and freight. freight traffic is minimal because Wadi Halfa' lacks adequate harbor facilities and mechanized loading and unloading.

Most permanent port facilities on the White Nile were constructed before the 1950s and need major repairs after 30 years of neglect. RTC has recently obtained funds from the government, but little, if any, have been allocated to improve the primitive port facilities. Barges often are rammed into the river bank and tied to the nearest stump. Manual labor is used to transfer most goods. Some ports have mechanical loading and unloading facilities, but they are often inoperative.

25X1

25X1

Kusti is the major river port. It is a collection point for goods from Port Sudan to the west and south. It also is a major rail and road transfer point. RTC has a shipyard there and in Khartoum.

25X1

Poor management is causing the rivers to lose their comparative advantage over the highways, even though river transportation is more fuel efficient than road transportation. Trucks are becoming the preferred method of transportation on the routes covered by RTC. Truck shipping costs exceed RTC rates, but speed and reliability allow private truckers to overcome their disadvantage in cost and seasonal operation. The RTC provides no scheduled service on routes that compete with the government railroad.

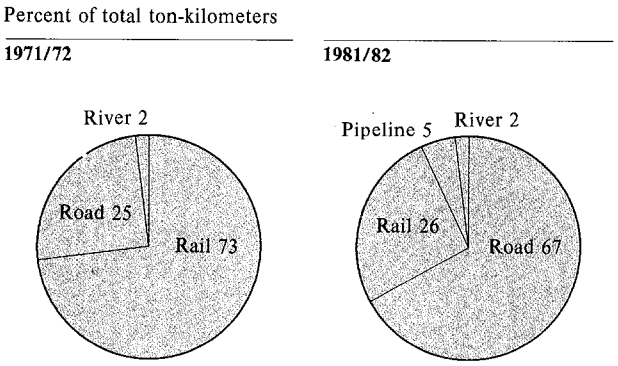
25X1

25X1

The Chevron Oil Company's involvement in river transportation highlights the untapped potential of Sudan's rivers. Chevron originally rented river craft from RTC to support its oil exploration activities in southern Sudan. Eventually, Chevron prepared a shipyard at Rabak, where it built three tugs and nine

25X1

Sudan: Distribution of Freight Traffic



302869 6-84

barges. Chevron's river service probably exceeds RTC in ton-kilometers hauled even though it has only one-third of RTC's capacity. Chevron has developed the first comprehensive navigation charts of the White Nile, cleared some channels, and installed navigation buoys from Kusti to Bentiu.

Paved Road Transportation

Highway construction as well as government policies that artificially lower prices for fuel and imported vehicles have moved roads to the dominant position in Sudanese transportation. Road transportation grew rapidly in the 1970s while rail and river transport were declining. The private sector dominates road transport, although the government and foreign aid finance road construction. The country's paved roads are concentrated in the agricultural areas of central Sudan and generally run westward from Port Sudan.

The government shifted its emphasis from rails to road in the mid-1970s. The relatively new road system is part of a six-year development program. This effort to build a 2,800-kilometer network of surfaced roads has received substantial support from foreign donors. Some 1,200 kilometers are still under construction, and more roads are in the planning stage.

Sudan's paved roads are constructed with double bitumen surface treatment or asphalt concrete and are designed to last 15 to 20 years. Road life will be shortened, however, if trucks continue to travel with excessive loads. A spot survey in 1981 showed that vehicles exceeded maximum axle capacity 50 percent of the time, and weight limits are not enforced on any of Sudan's roads. 25X1

The Port Sudan–Khartoum highway is the most heavily traveled road in Sudan. This 1,250-kilometer, two-lane road passes through a major irrigated farming area along the Blue Nile and connects major population centers. Paving was completed in October 1980. The road is of fairly uniform quality despite the involvement of several construction companies and foreign donors. 25X1

The highway has permitted the movement of goods from Port Sudan that the railroad could not handle. Completion of the paved road has increased fuel efficiency and reduced travel time. A trip that took three to six days in 1979 now takes only 20 hours by truck and 15 hours by car. These advantages will decline, however, as the road deteriorates because of overloaded vehicles and insufficient maintenance. 25X1 25X1

The private sector has responded to the opportunities provided by the new paved roads. Most truckers are small operators who own their trucks. Competition is intense, as shown by reduced rates for the return trip to Port Sudan, especially during the slow summer months. Larger trucking companies that use tractor-trailer rigs and operate only on paved roads are becoming more common. Most of these companies are based in Port Sudan, where fuel is readily available. 25X1

Two major trucking firms are not privately owned: the Sudanese-Kuwait Road Transport Company and the Military Transport Company (MTC), an affiliate of the Military Economic Corporation. Both firms offer truck and bus service between Port Sudan and Khartoum. MTC also provides bus service within Khartoum and between Khartoum and Al Ubayyid. 25X1 25X1

The Port Sudan–Khartoum highway in the Red Sea hills

25X1

In February 1984 President Nimeiri ordered MTC to take over the Khartoum Province Public Transport Company, which was having trouble keeping its aging bus fleet operational. MTC recently purchased new buses to serve its monopoly on public transportation in the capital area. The Military Economic Corporation also owns a truck and Land-Rover assembly plant in Port Sudan and probably will begin assembling buses within two years.

Most Sudanese motorists lack access to reliable and reasonably priced fuel and lubricants. The government's General Petroleum Corporation (GPC) controls the pricing and allocation of petroleum products. Marketers operating in the official market obtain the same price per gallon of fuel regardless of where it is sold. Consequently, supplies are readily available in Port Sudan and become more difficult to obtain—and the black-market price rises—as the distance from Port Sudan increases. Since July 1981 gasoline has been rationed by vehicle registration, allowing private vehicles 30 to 50 liters per week, depending on availability. Black-market prices of three to five times the official price are common. Periodic rises in the official price of fuel have not kept pace with inflation.

Registration of private passenger cars has been increasing at a 10-percent annual rate since 1970, but fuel per registered vehicle has fallen by about 50 percent during the same period. The government banned private import of cars and pickup trucks in August 1983 in an attempt to narrow the trade deficit. Import licenses are still available for larger commercial vehicles.

25X1

The Roads and Bridges Public Corporation (RBPC), a division in the Ministry of Construction and Public Works, is responsible for construction and maintenance of primary roads. In RBPC's FY 1983 budget of $35 million, $31 million went to new project construction, $1.5 million to administration, and $2.5 million to maintenance. Road user charges—primarily vehicle import duties and fuel taxes—exceed the RBPC budget by $15-20 million per year. The government could easily finance its required road maintenance if these revenues were earmarked for RBPC, but instead they go into the general treasury. Because the paved road network is relatively new, maintenance requirements will grow as the roads age. The postponement of repairs and maintenance will increase the eventual cost.

25X1

25X1

25X1

Unpaved Road Transportation in the North and West

The most heavily used unpaved northern roads are Khartoum-Dunqulah and 'Atbarah-Dunqulah. Road transport to Dunqulah is faster and more reliable, albeit more expensive, than rail and river service.

25X1

the 600-kilometer trip from Dunqulah to Khartoum takes an average of 26 hours by road, with no refueling or service available. Most of the trucks and buses serving the north are based in Khartoum.

The areas west of Kusti rely on unpaved highways and the railroad for transportation. The main highway between Kusti and Al Ubayyid is passable most of the year to trucks and four-wheel-drive passenger vehicles. The area surrounding the Kusti–Al Ubayyid highway—which is primarily in the Kurdufan region—contributes a major portion of Sudan's private-sector agricultural exports. In recent years, about half of the region's agricultural exports have been transported by rail and half by truck.

Trucking in the west is conducted primarily by small private companies using 6-to-8-ton vehicles. Charges vary according to driving conditions, fuel costs, and the direction of traffic. Drivers can charge higher fees than the railroad because their services are faster. Drivers also often earn additional revenue from passengers who sit on top of the cargo.

Competition among the western truckers appears strong, with few barriers to entry. Anyone capable of raising $30,000 can import a truck, although there usually is a long wait to place orders and obtain delivery. Fuel supplies are unreliable. Virtually all fuel must be purchased on the black market at more than twice the official price.

The Kusti–Al Ubayyid highway is likely to be the next major paved road project in Sudan. The project will be initiated in 1984 and funded chiefly by USAID and the African Development Bank. The paved road will improve significantly the transportation of rain fed agricultural goods, a sector with good growth potential. The country's other paved roads primarily serve government-run irrigation projects.

Roads in the South

Southern Sudan has 4,500 kilometers of primary and 3,000 kilometers of feeder roads. The only paved roads are within the city limits of Juba. Most of the main links are impassable during the rainy season from May to September. Transportation costs are much higher than in the north because of slower speeds and higher prices for fuel and imported vehicles and parts.

Two primary highways connect southern Sudan with neighboring countries. Both are used to bring imports to Juba from Kenya, with little return traffic. Donor agencies that operate in the south (including the UN Development Program, International Development Association, and official aid agencies of the United States, West Germany, Norway, and the Netherlands) often obtain supplies from Kenya rather than having to depend on the Sudanese transportation system. Most of the south's imports come from Port Sudan, however, even though the route to Mombasa port in Kenya is shorter. Foreign exchange shortages and the availability of subsidized goods from the north prevent the development of extensive southern trade with Kenya.

25X1

25X1

The principal constraint on southern transportation, in our judgment, is inadequate and unreliable fuel supplies, not poor roads. The distance from Port Sudan worsens shortages and keeps black-market prices higher than in any other part of the country. The General Petroleum Corporation allocates petroleum products to the southern regional governments, which then allocate fuel to the final users. Much of the fuel allocated to the official market winds up on the black market.

25X1

25X1

The GPC does not replace fuel that is allocated but fails to reach the south. For example, the oil lost when a barge headed for Juba was set afire by rebels in February 1984 will not be replaced by another shipment. Another source of supply unreliability is the provincial commissioner at Malakal, who has occasionally stopped barges and unloaded fuel destined for Juba. The problem of fuel appears to be a major reason private trucking companies in the south have not matched their performance in other regions, where they have been the dominant force in expanding road transportation.

25X1

25X1

Few southerners own motor vehicles. Most southern farmers rely on bicycles to transport their goods to market. Fuel allocations by GPC have made diesel fuel less scarce than gasoline, providing a bias toward 7-ton and other large trucks rather than the smaller gasoline pickup trucks that would be better suited to the road conditions and the farmers' requirements.

25X1

25X1

Foreign donors have constructed virtually all of the gravel roads in the south and perform most of the maintenance. Once completed, donor-built roads are turned over to the regional governments along with maintenance equipment. These governments lack the resources to meet the increased maintenance obligations arising from use of roads built over the past five years. Moreover, they are having difficulty keeping the maintenance equipment operational. The southern road system probably will deteriorate severely before an integrated network of primary roads is completed.

Southern travelers must contend with bandits and organized rebel groups in addition to poor roads and little fuel. Travelers on the two main highway routes to the south, Malakal-Juba and Waw-Juba, occasionally become victims of violence, according to Embassy reporting. The same risks are present for truckers entering Sudan from Uganda or Kenya. Trucks often will travel in convoys with a military escort, but the added risk increases the price of consumer goods in Juba.

A new road will improve links with Kenya and the outside world and may lessen the south's dependence on trade with the north. This all-weather gravel road has been completed on the Kenyan side, and the Sudanese portion probably will be finished by October 1984. Realization of plans to pave the Sudanese portion would make it the first paved highway in the south.

A second major southern road project is an all-weather, raised road extending along the Jonglei Canal from Malakal to Bor. The road now being used for this route is impassable during the rainy season. The canal and road were originally to be finished by 1986, but construction was suspended indefinitely in November 1983 because of dissident activity.

Air Transportation

Air transportation provides Sudan's most important passenger links to the outside world. The national airline is Sudan Airways, operated by Sudan Airways Corporation (SAC). SAC has been unprofitable, with an average loss of $1 million per year since 1981. Approximately 70 percent of SAC's revenue comes from international passenger flights.

President Nimeiri converted the state-owned SAC to a private company in November 1983. A lack of capital was the principal motivation for the reorganization, 25X1
The airline is looking for a partner to help finance the purchase of new planes it needs on its international routes. The underutilization of SAC's international routes provides an incentive for potential investors who want to expand their operations. 25X1

The SAC fleet consists of two Boeing 707s used for international flights, one Boeing 737 used for domestic and regional flights, and three Fokker F-27s used for domestic flights. Saudi Arabia gave President Nimeiri a new 707 in October 1983. The plane has SAC colors and is used for VIP flights. SAC also leases some planes to augment its fleet. Major maintenance of SAC planes is performed at Khartoum International Airport, but overhauls are done outside Sudan. 25X1

SAC will have to replace the 707s now serving European routes by 1985 to comply with International Civil Aviation Organization noise standards. 25X1 25X1

25X1

Sudan has 71 airports, but only 17 are used in scheduled operations. All civilian airports except Khartoum have primitive navigation facilities, and most are subject to closing during rain. The airports at Khartoum, Juba, Kassala, and Port Sudan have lighted runways for night flights. There are no noise abatement requirements at any Sudanese airport. 25X1 25X1

All domestic and international flights use Khartoum Airport. SAC operates about 30 domestic and 30 international flights per week. Most of the international flights are to the Middle East and Africa, with Jidda, Saudi Arabia being the most frequent destination. Fifteen other international airlines also provide regular flights to Khartoum. 25X1 25X1

Capacity utilization for SAC passenger flights is about 50 percent on international flights and 70 percent on domestic flights. International freight capacity utilization is only 45 percent. Service is unreliable for a variety of reasons, ranging from floods and sandstorms to fuel shortages. The frequent unavailability of fuel at domestic airports often forces planes to carry enough for a round trip. Fuel shortages at Khartoum have sometimes disrupted international flights as well. Domestic flights are sometimes canceled without notice so that a 737 can be used on a more profitable international route or for a VIP flight.

Domestic air transport is provided by SAC and a few private charter companies. The Director of Aviation has granted licenses to several air transport companies that are carrying freight or passengers on routes not served by SAC. Licenses are not generally granted for scheduled service that might compete directly with SAC flights.

The runways at Khartoum recently were lengthened and widened, permitting landings by all types of aircraft. Automatic landing equipment is being installed for landings during bad weather. These and other planned improvements may help alleviate concerns about safety at Khartoum, where planes have slid off the runway several times during rainstorms.

Sudan plans to build a new airport north of Khartoum. The present airport was not designed to handle its present passenger load, and delays are common. Moreover, the airport is located in a growing area that the government may want to use for urban development. The plan for a new airport is a favorite of President Nimeiri, but the International Monetary Fund and aid donors have pressed him to drop it from the public investment program. We believe Sudan is unlikely to obtain financing for the project within the next five years.

Outlook and Implications

Transportation is the one portion of the Sudanese economy in which the private sector is expanding. The United States and the IMF agree that Sudan should limit the role of public corporations in the economy and promote more private enterprise. Progress in transportation has come by building roads that have allowed a private road transportation sector to develop. 25X1

The expansion of private road transport will help entrepreneurs carry out their investment activities without having to deal with the inefficient government transportation bureaucracies. Chevron's willingness to invest large sums for oil exploration is a case in point. We believe that Chevron would not be operating in Sudan today if it had to rely on government railroads, airlines, and river transportation to maintain its supply lines to southern Sudan. 25X1

Most firms, however, are too small to establish a fleet of river craft and aircraft as Chevron has, and they are individually not so important to the government as Chevron. Hence, there are still institutional barriers to small investors. These investors will hesitate to make long-term commitments unless they become convinced that government transportation services will improve. In particular, failure to improve inadequate government rail and river transport services will cause these sectors to deteriorate further and be replaced by more expensive road transportation. 25X1 25X1

Another uncertainty for investors is the large maintenance liability that Sudan has incurred by expanding its road network. Potential road users will be reluctant to initiate projects that require reliable transport unless they believe the government will improve its maintenance of the transportation network. The government has no long-term maintenance plan or system to set aside road user fees to finance maintenance. The perception that future maintenance will not be performed probably will be most severe in the south, where the gravel roads deteriorate fast and the northern government is perceived as not caring about southern economic development. 25X1 25X1

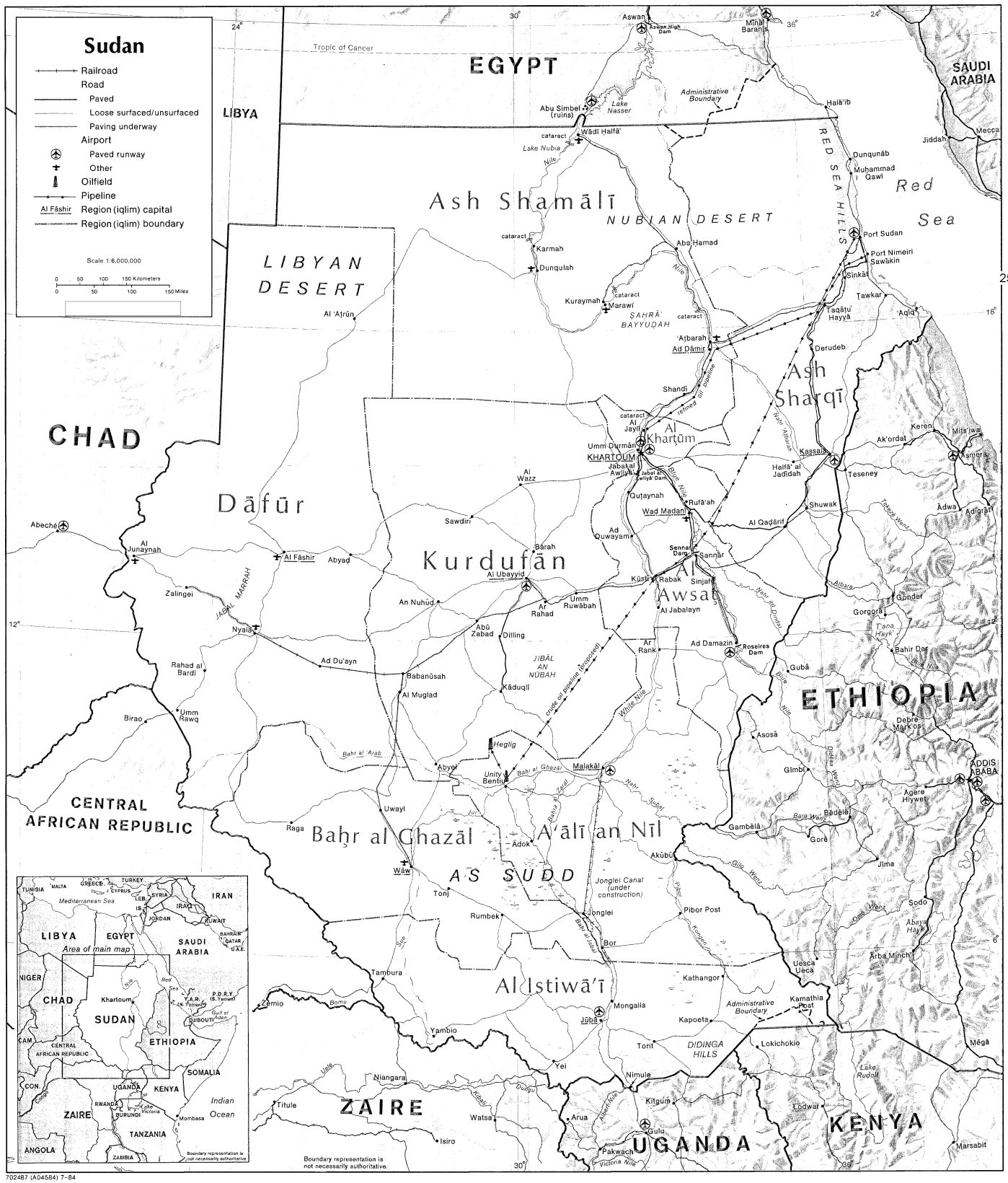
The United States has a major role in removing some of these uncertainties, with three major USAID-funded transportation projects in Sudan. One of these—the paving of the Kusti–Al Ubayyid road in western Sudan—will help develop an important 25X1

source of export earnings in the private sector: rain fed agriculture in the Kurdufan region. A second project, the Juba-Kenya road, will encourage an increase in trade between Kenya and Sudan, thereby augmenting the deficient southern tax base with trade duties and enabling the south to decrease its dependence on the central government. 25X1

The third USAID project, aimed at improving river transportation on the White Nile, is unlikely to increase southern agricultural exports significantly unless fuel shortages are alleviated. Motorized transportation to river ports is unreliable because fuel cannot be obtained regularly. If competition on the river can be introduced, northbound barges probably would begin to carry more cargo. Freight rates probably would drop, encouraging more farmers to send produce north for export. 25X1

We believe, however, that road travel, with its relatively short transit times, offers southern agriculture and livestock a better transportation link than the river. For this reason, the road along the Jonglei Canal—if it is completed—should help the south reduce its import dependence. This link would unite the north with the now volatile A'li an Nil region. The same is true of the service road that will accompany the oil pipeline from the oilfields near Bentiu. These projects will be seriously delayed, however, unless the government can stem dissident attacks in the south. 25X1

Transportation is not the only impediment to developing Sudan's agriculturally based economy. The government has had erratic tax and tariff policies, which are underscored by its sudden and recent moves to Islamize the economy. In addition, chronic foreign exchange shortages prevent farmers from reliably obtaining crucial supplies. The government is extremely suspicious of private-sector activity and does little to support it. Improvements in transportation would have a greater effect on the economy if these policy-related barriers to development were lowered. 25X1



25X1